

1     WHAT IS CLAIMED IS:

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~~1. A transmitter used in a CDMA mobile communication system comprising:~~

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~~a pilot channel transmit unit which intermittently transmits a pilot signal in a spread spectrum formation; and~~

~~traffic channel transmit units which respectively transmit data signals in respective traffic channels.~~

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2. The transmitter as claimed in claim 1, wherein said pilot channel transmit unit comprising:

a pilot data generator which generates pilot data;

a first modulator which modulates the pilot data;

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a second modulator which despreads a spectrum of modulated pilot data from the first modulator to thereby generate said pilot signal; and

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a timing generator which generates a timing signal applied to at least one of the pilot data generator and the first and second modulators so that the pilot signal can be intermittently transmitted.

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3. The transmitter as claimed in claim 1, wherein the pilot signal has a period shorter than an interval at which the pilot signal is intermittently

1 transmitted.

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~~4. A receiver used in a CDMA mobile communication system comprising:~~

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10 a pilot channel receive unit which demodulates pilot signals respectively transmitted intermittently in a spread spectrum formation by transmitters and detects, from the pilot signals, a timing for a traffic channel demodulation; and

15 a traffic channel receive unit which demodulates data at the timing detected by said pilot channel receive unit.

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5. The receiver as claimed in claim 4, wherein said pilot channel receive unit detects the timing for the traffic channel demodulation by comparing peaks of the pilot signals intermittently transmitted, the timing for the traffic channel

25 demodulation corresponding to a greatest one of the peaks.

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6. The receiver as claimed in claim 4, further comprising an estimating unit which estimates states of paths from the pilot signals intermittently transmitted.

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1                   7. The receiver as claimed in claim 6,  
wherein the estimating unit supplies the traffic  
channel receive unit with information necessary to the  
traffic channel demodulation and based on an estimated  
5                   state of the path to be demodulated.

10                  ~~8. A CDMA mobile communication system~~  
comprising transmitters and receivers;  
each of said transmitters comprising:  
a pilot channel transmit unit which  
intermittently transmits a pilot signal in a spread  
15                  spectrum formation; and  
traffic channel transmit units which  
respectively transmit data signals in respective  
traffic channels,  
each of said receivers comprising:  
20                  a pilot channel receive unit which  
demodulates pilot signals respectively transmitted  
intermittently in the spread spectrum formation by the  
transmitters and detects, from the pilot signals, a  
timing for a traffic channel demodulation; and  
25                  a traffic channel receive unit which  
demodulates data at the timing detected by said pilot  
channel receive unit.

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                  9. The CDMA mobile communication system as  
claimed in claim 8, wherein said transmitters  
35                  intermittently transmit the pilot signals with time  
offsets.

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1           10. The CDMA mobile communication system as  
            claimed in claim 9, wherein said transmitters  
            intermittently transmit the pilot signals with the  
            time offsets so that the pilot signals are serially  
5           transmitted one by one.

10           11. The CDMA mobile communication system as  
            claimed in claim 9, wherein said transmitters  
            intermittently transmit the pilot signals with the  
            time offsets so that only one of the pilot signals is  
            transmitted at any time.  
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20           12. The CDMA mobile communication system as  
            claimed in claim 9, wherein said transmitters  
            intermittently transmit the pilot signals with the  
            time offsets so that a time period is provided during  
            which none of the pilot signals are transmitted.

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30           13. A CDMA mobile communication method  
            comprising the steps of:  
            a) transmitting, on transmit sides, pilot  
            signals in a spread spectrum formation;  
            b) demodulating, on a receive side, the  
            pilot signals respectively transmitted intermittently;  
            and  
35           c) detecting, on the receive side, from the  
            pilot signals, a timing for a traffic channel  
            demodulation.

1           14. The CDMA mobile communication method as  
            claimed in claim 13, wherein the step a) comprises the  
            step of intermittently transmitting the pilot signals  
            with time offsets.

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            15. The CDMA mobile communication method as  
10           claimed in claim 14, wherein the step a)  
            intermittently transmits the pilot signals with the  
            time offsets so that the pilot signals are serially  
            transmitted one by one.

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            16. The CDMA mobile communication method as  
            claimed in claim 14, wherein the step a)  
20           intermittently transmits the pilot signals with the  
            time offsets so that only one of the pilot signals is  
            transmitted at any time.

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            17. The CDMA mobile communication method as  
            claimed in claim 14, wherein said step a)  
            intermittently transmits the pilot signals with the  
30           time offsets so that a time period is provided during  
            which none of the pilot signals are transmitted.

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